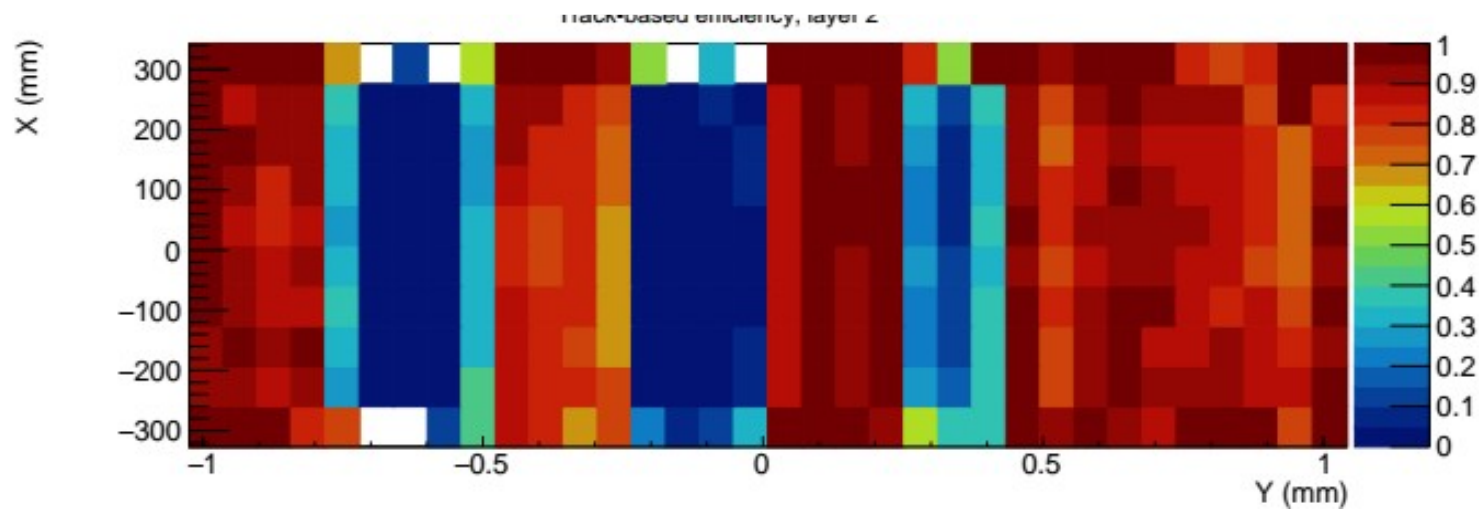# Layer 3 low efficiency issues from EEL cosmic data
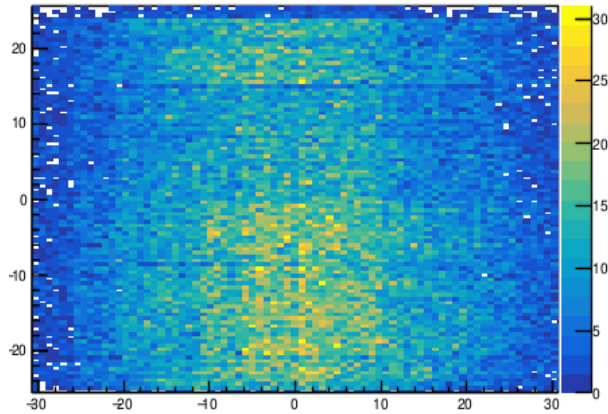
- Divided a run (no. 2069) having 1M events into 7 splits

- Looked at the temporal evolution of the problem using strip ADC distributions

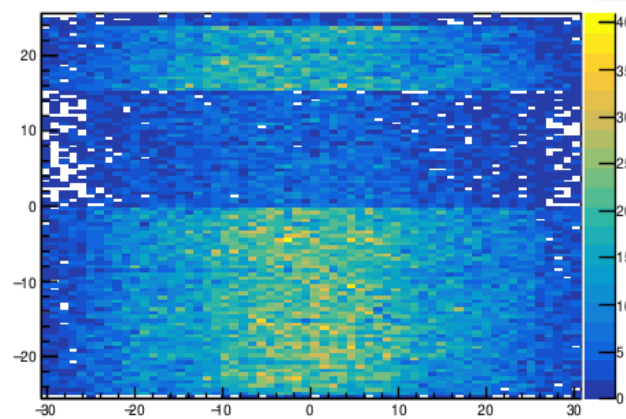# Temporal evolution of the issue on Module 10
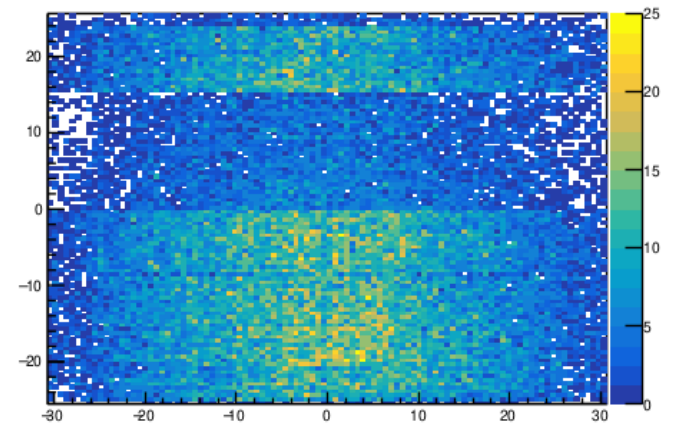
Split 1

Cluster Distributions module_10

Split 2

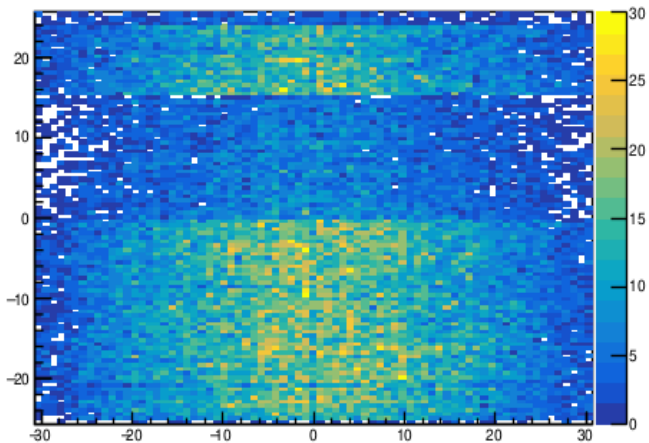Cluster Distributions module_10

Split 3
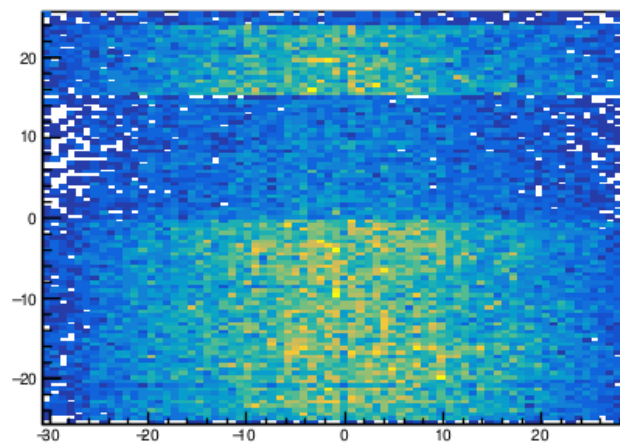
Cluster Distributions module_10
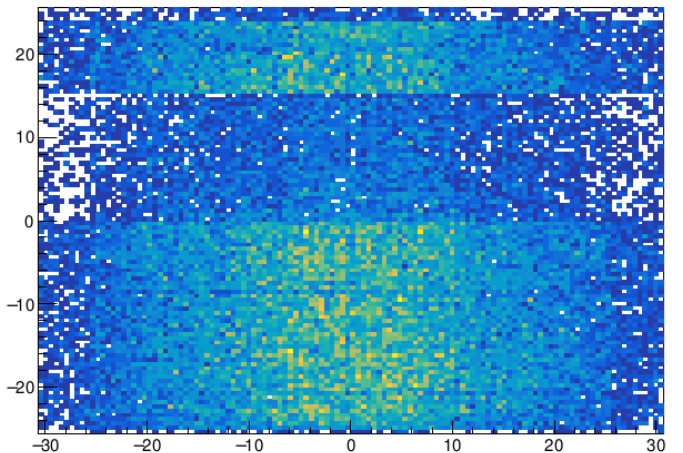
Split 4

Cluster Distributions module_10

Split 5

Cluster Distributions module_10
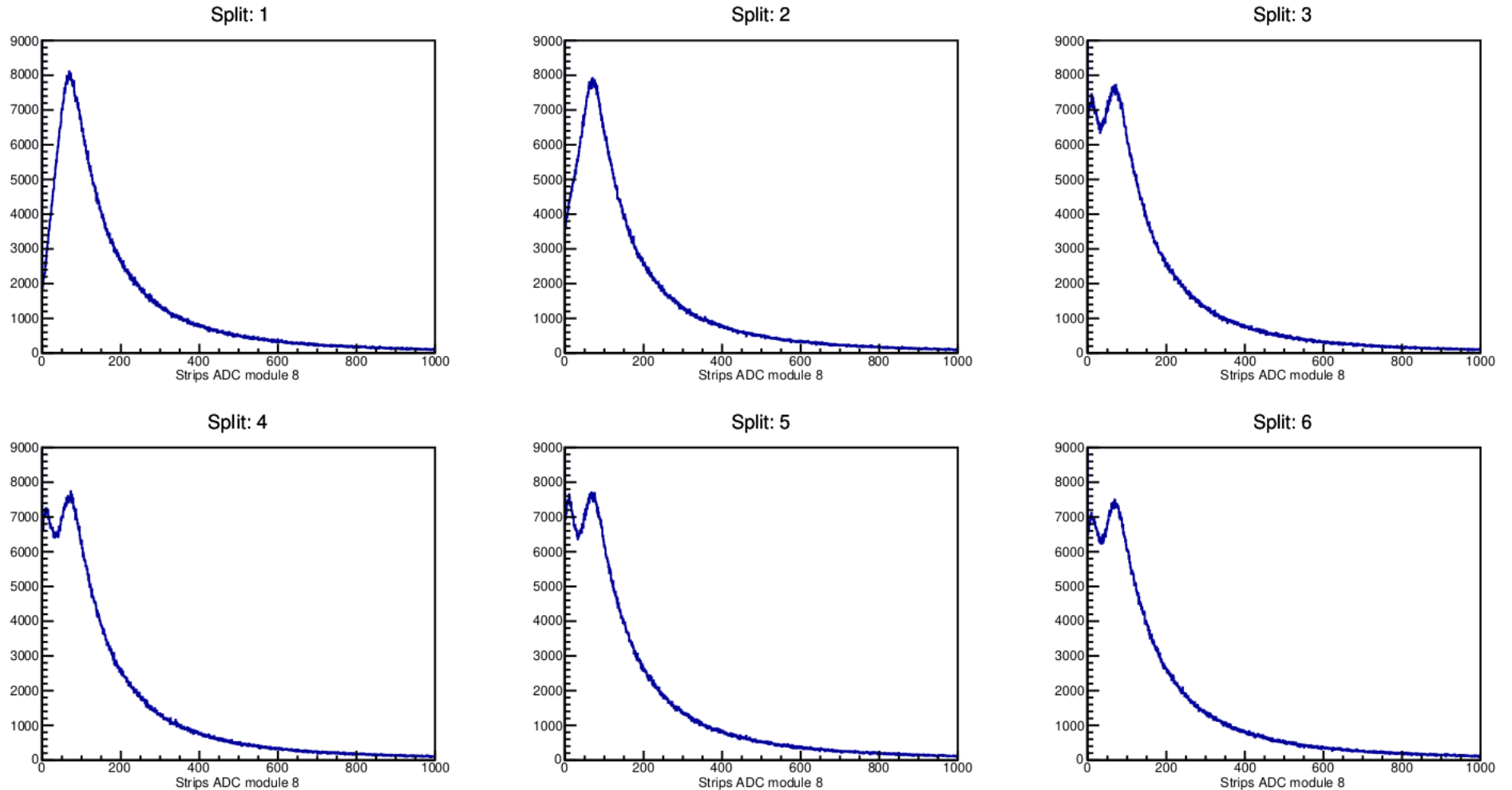
Split 6

Cluster Distributions module_10

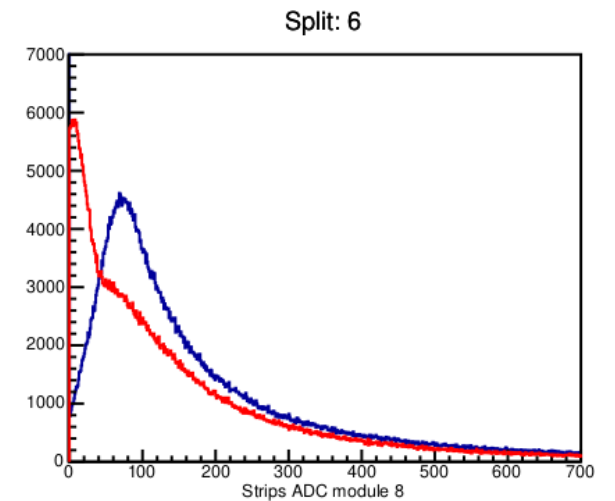X-axis → X cluster distribution

Y-axis → Y cluster distribution

No readout MPD errors

2

Temporal evolution in Strip ADC of the issue on Module 10
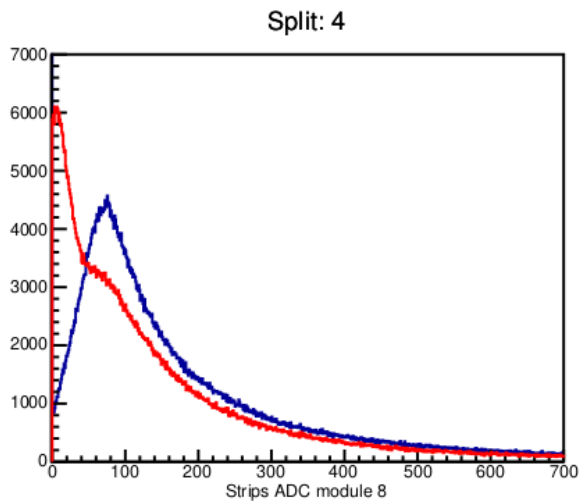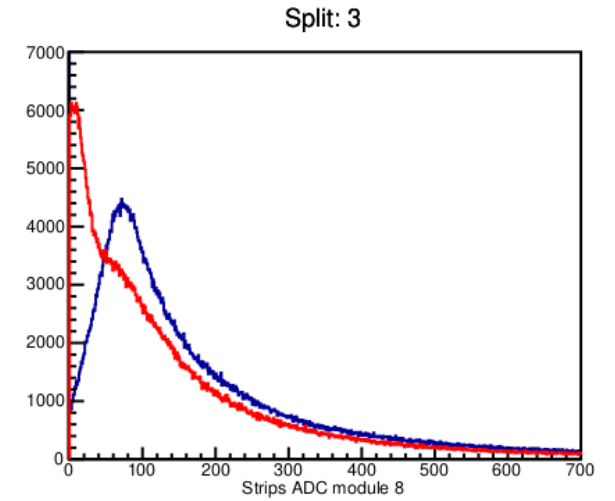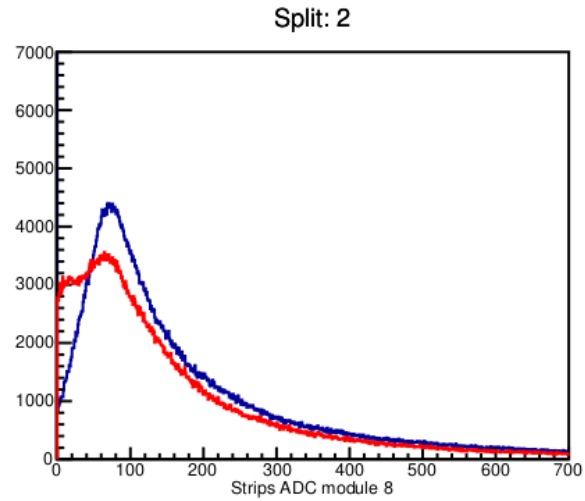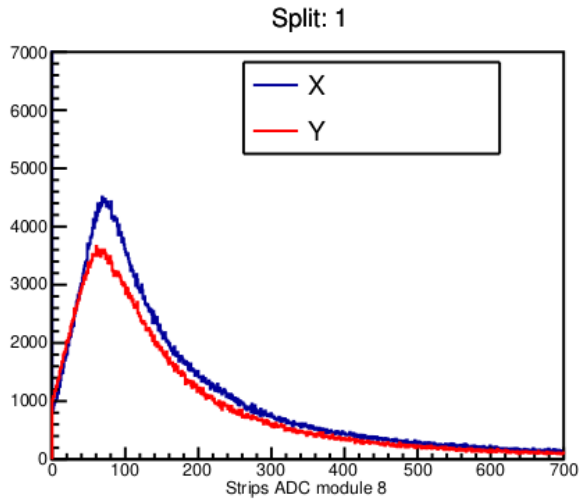

Expected to have landau distributions

Temporal evolution on Strip ADC of the issue on Module 10
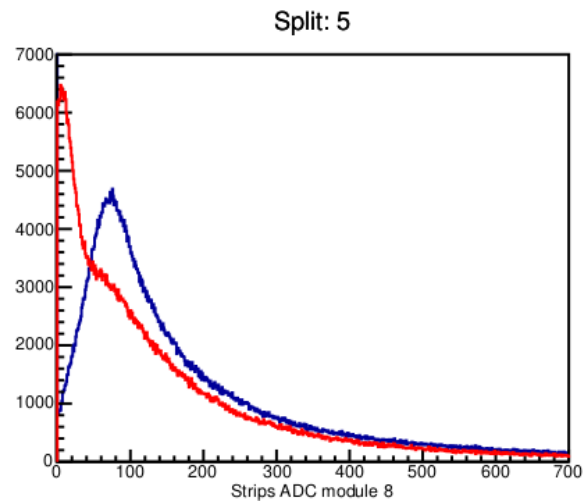
Layer 3 low efficiency issues from EEL cosmic data

- Selected two regions of APV25 in each module for the 3rd split
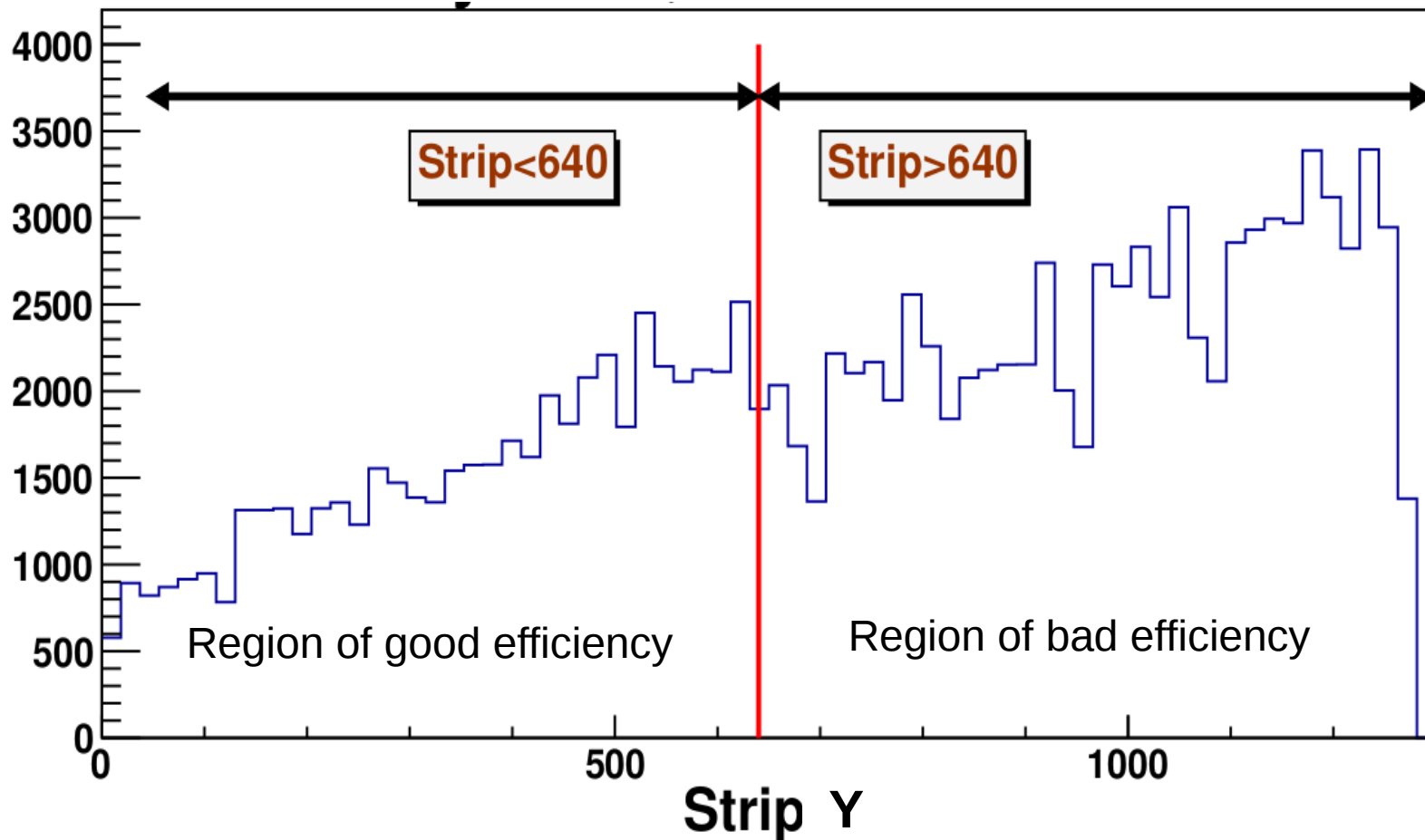
Adc distributions for 6 different time samples
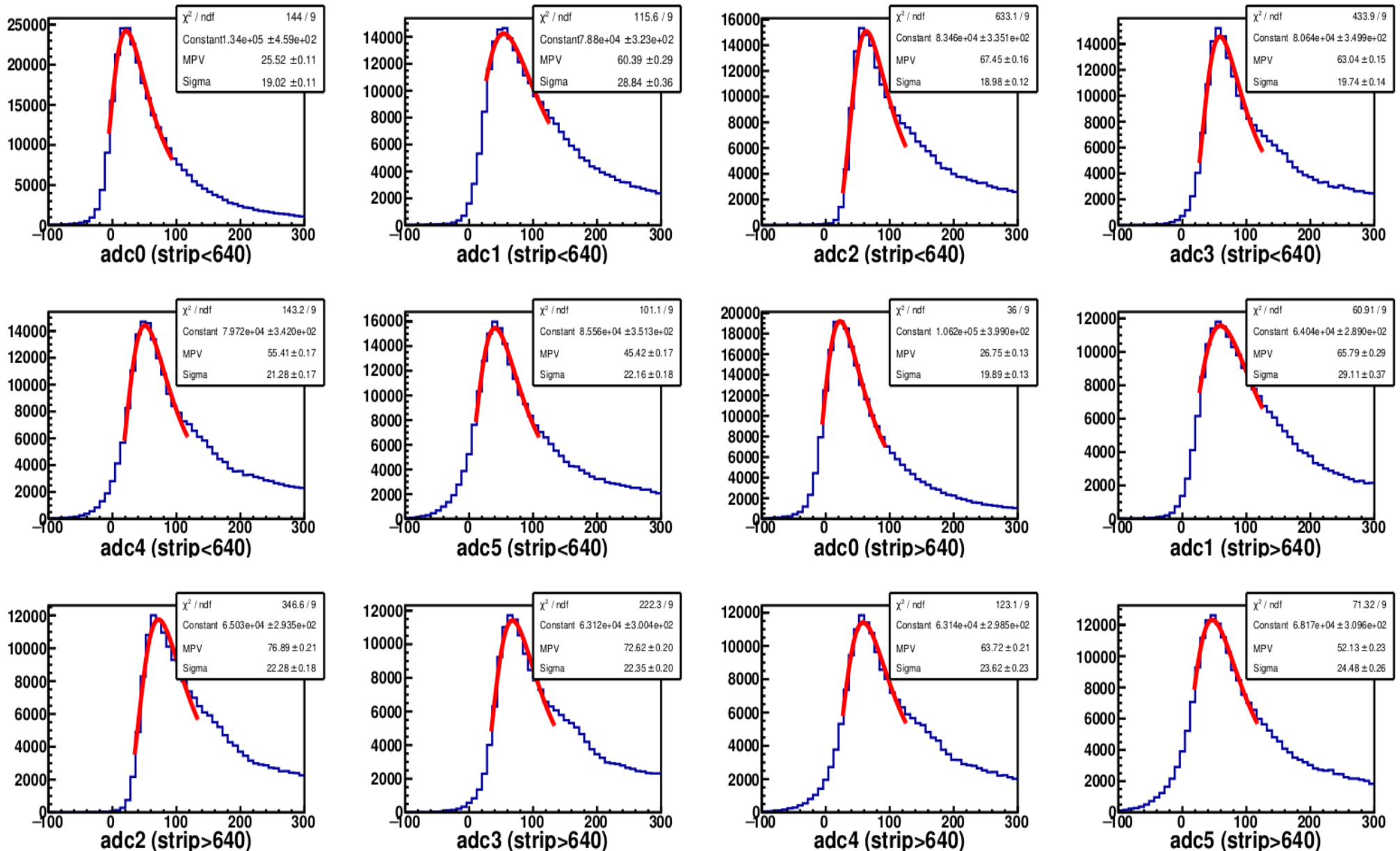
(Third split)

ADC vs time (Layer: 2, Module: 0)

strip<640

χ^2 / ndf	821.4 / 3
Constant	387.2 ±0.2935
MPV	2.846 ±0.003314
Sigma	1.453 ±0.00218

strip>640

χ^2 / ndf	1040 / 3
Constant	450.2 ±0.2853
MPV	2.714 ±0.002629
Sigma	1.444 ±0.001797
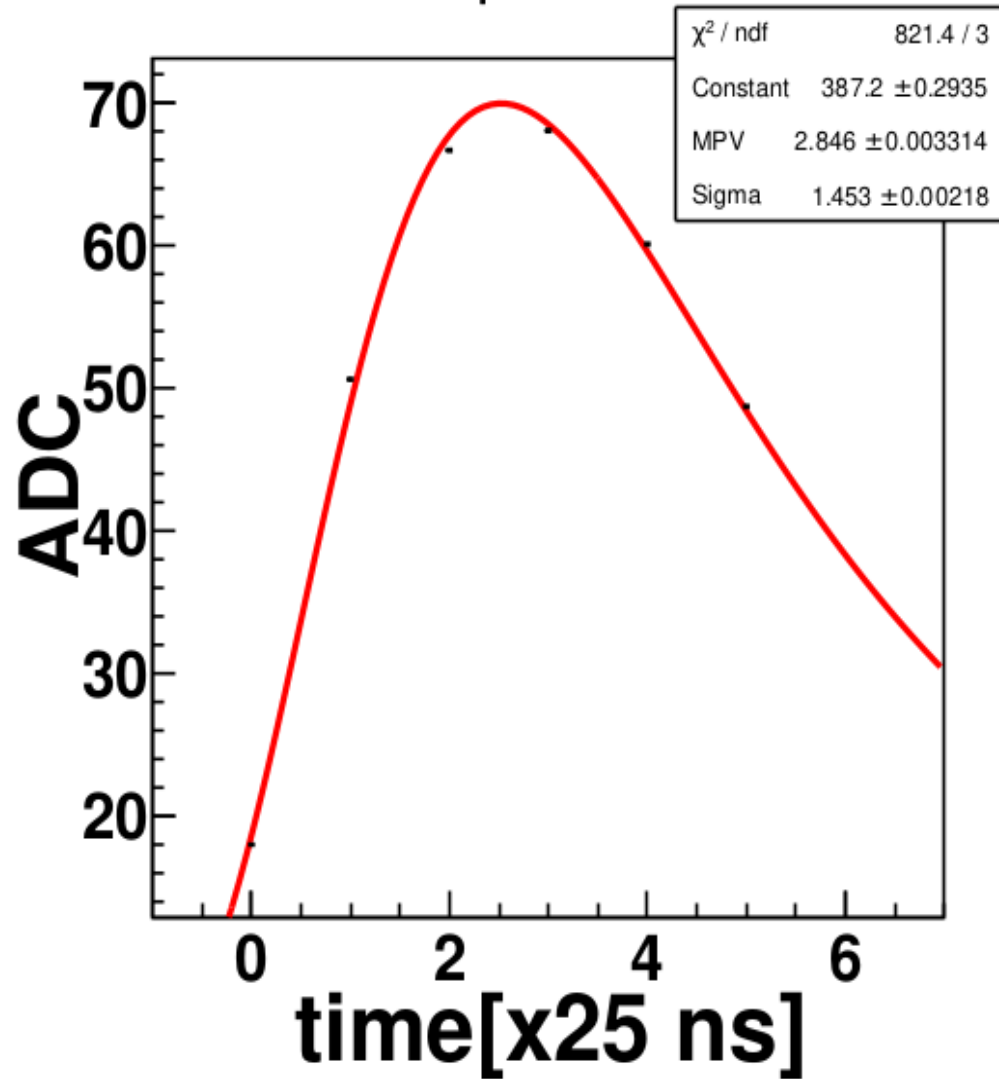
(Third split)
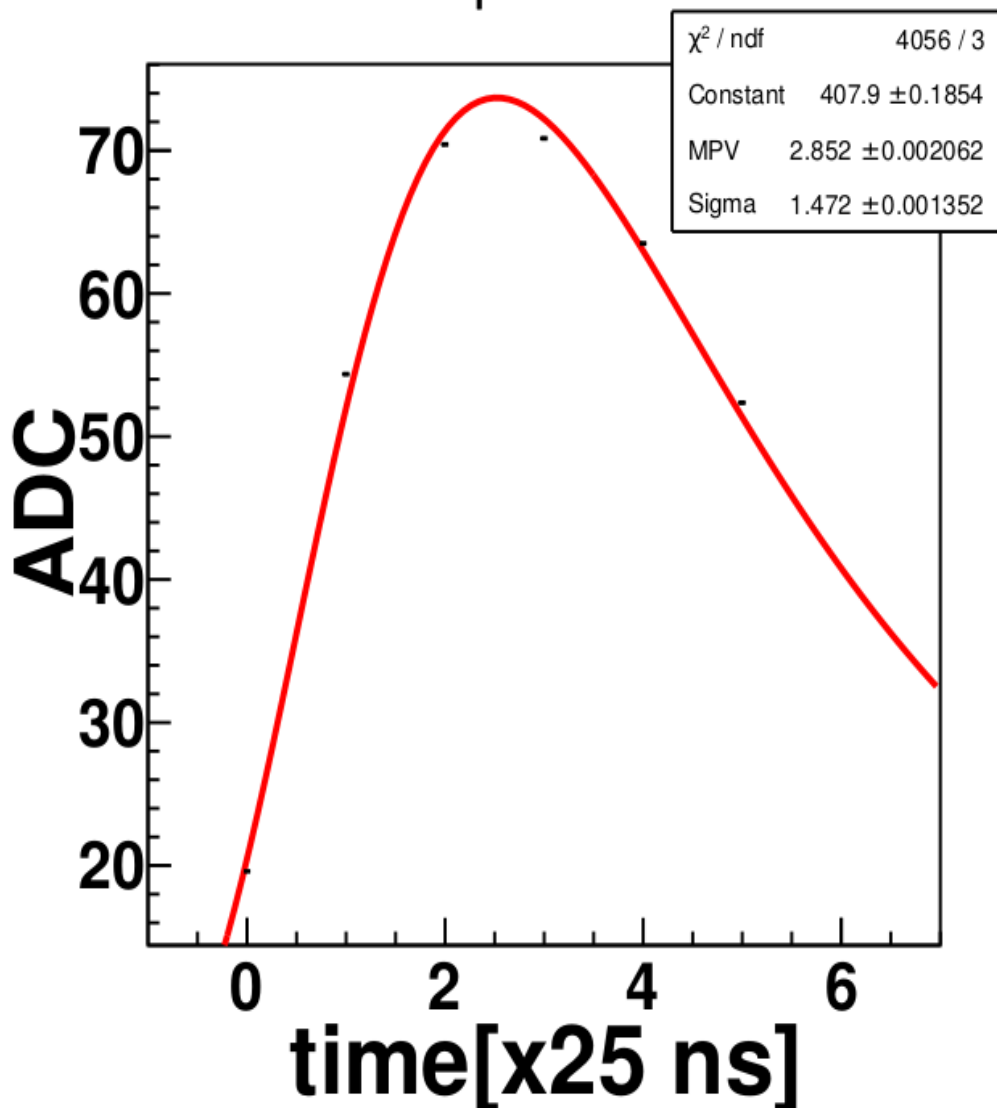
ADC vs time (Layer: 2, Module: 1)
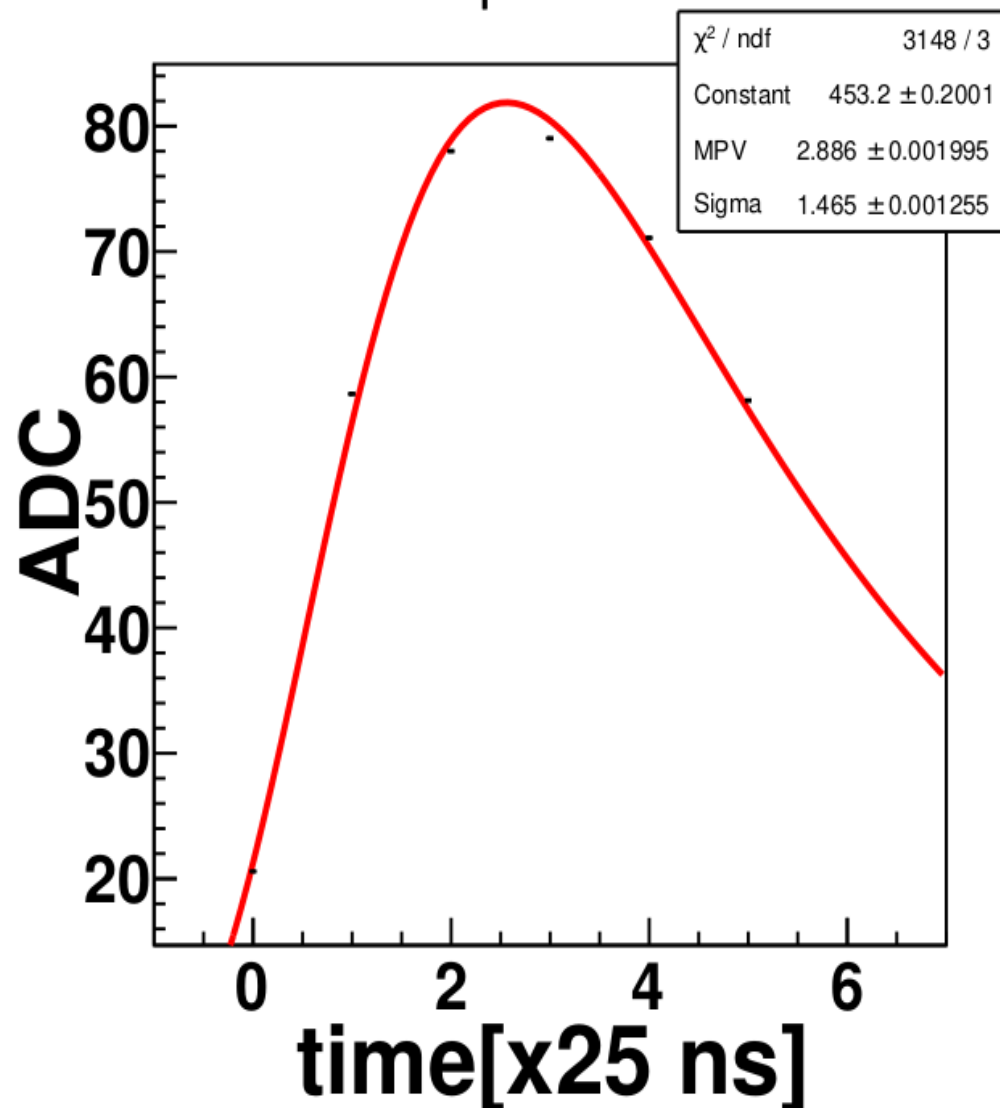
(Third split)

ADC vs time (Layer: 2, Module: 2)

strip<640

χ² / ndf	1.66e+04 / 3
Constant	379.3 ±0.1336
MPV	2.527 ±0.001498
Sigma	1.442 ±0.001077

strip>640

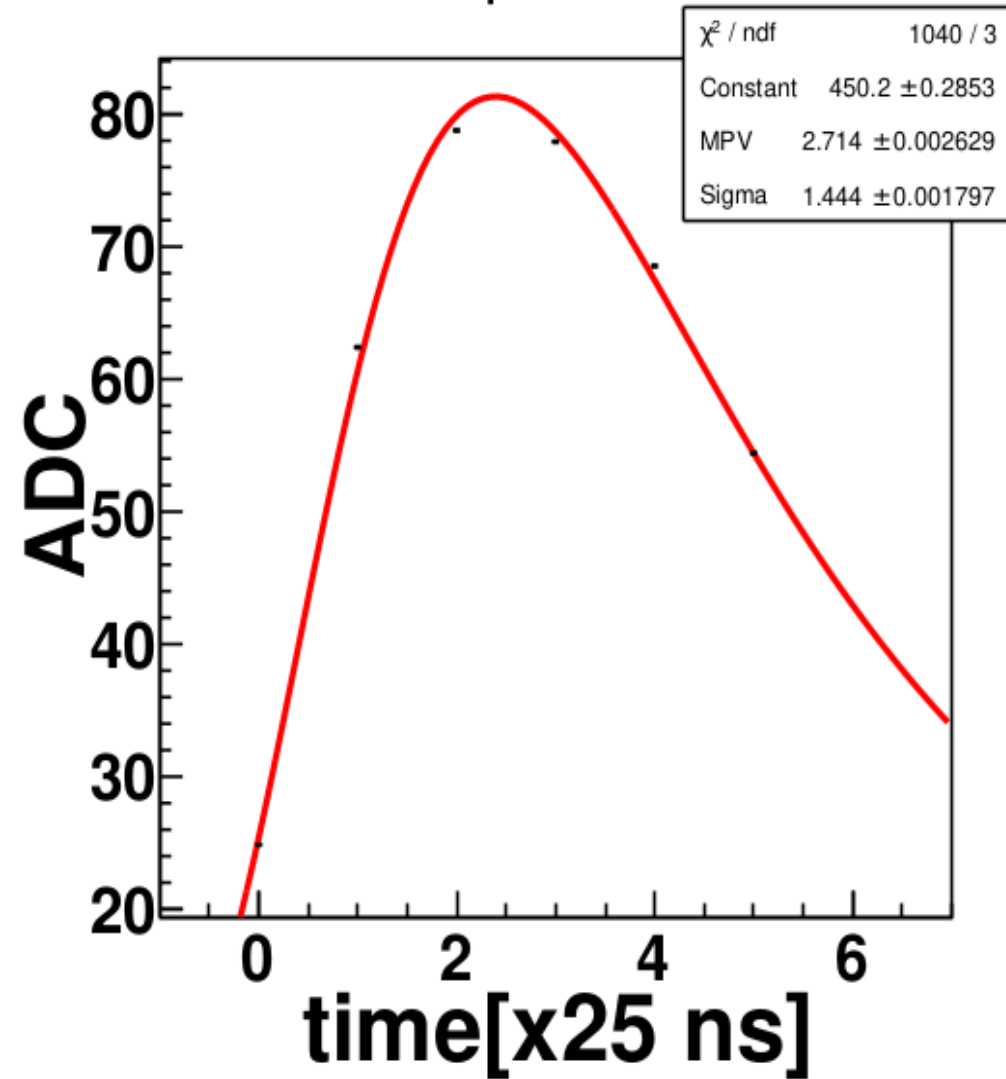| χ² / ndf	1.095e+04 / 3
Constant	433.4 ±0.1619
MPV	2.581 ±0.001556
Sigma	1.429 ±0.001092
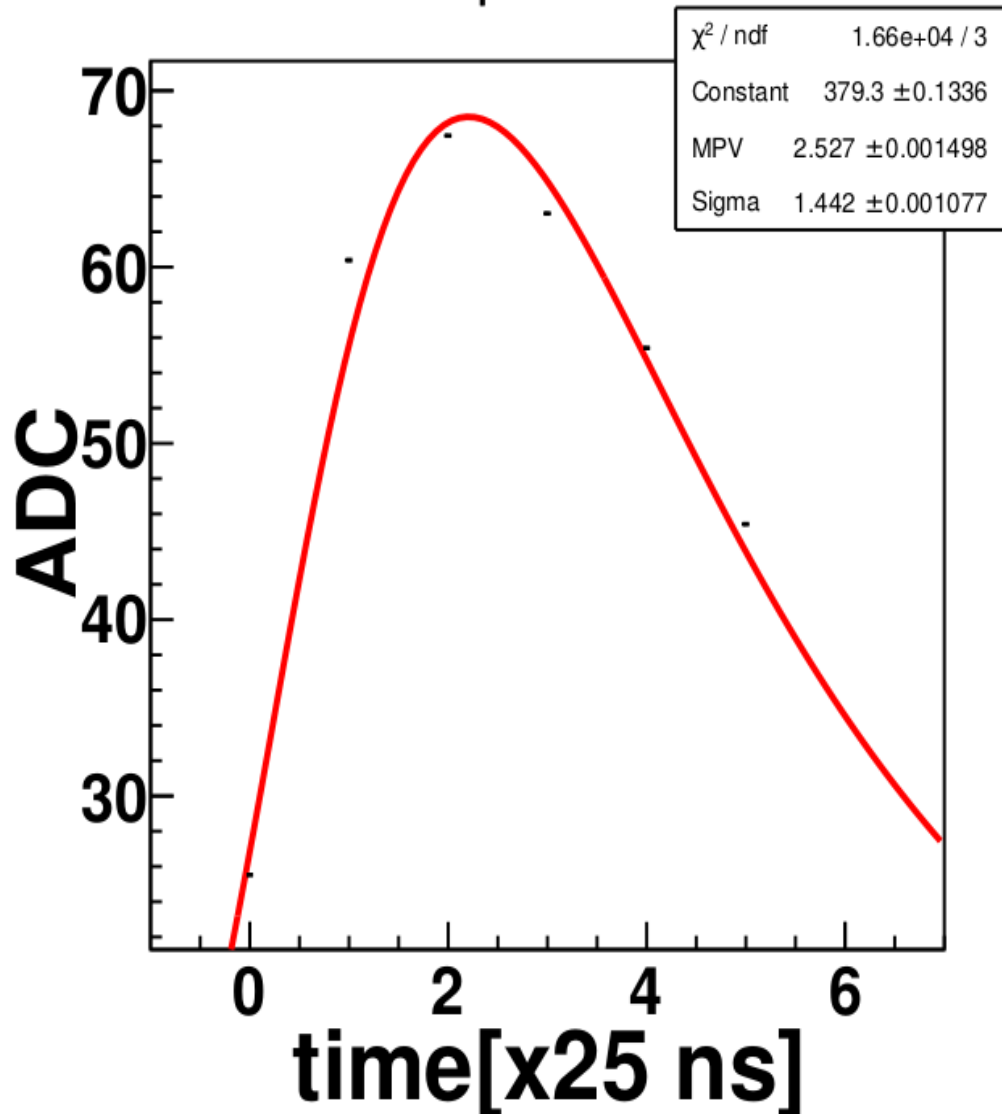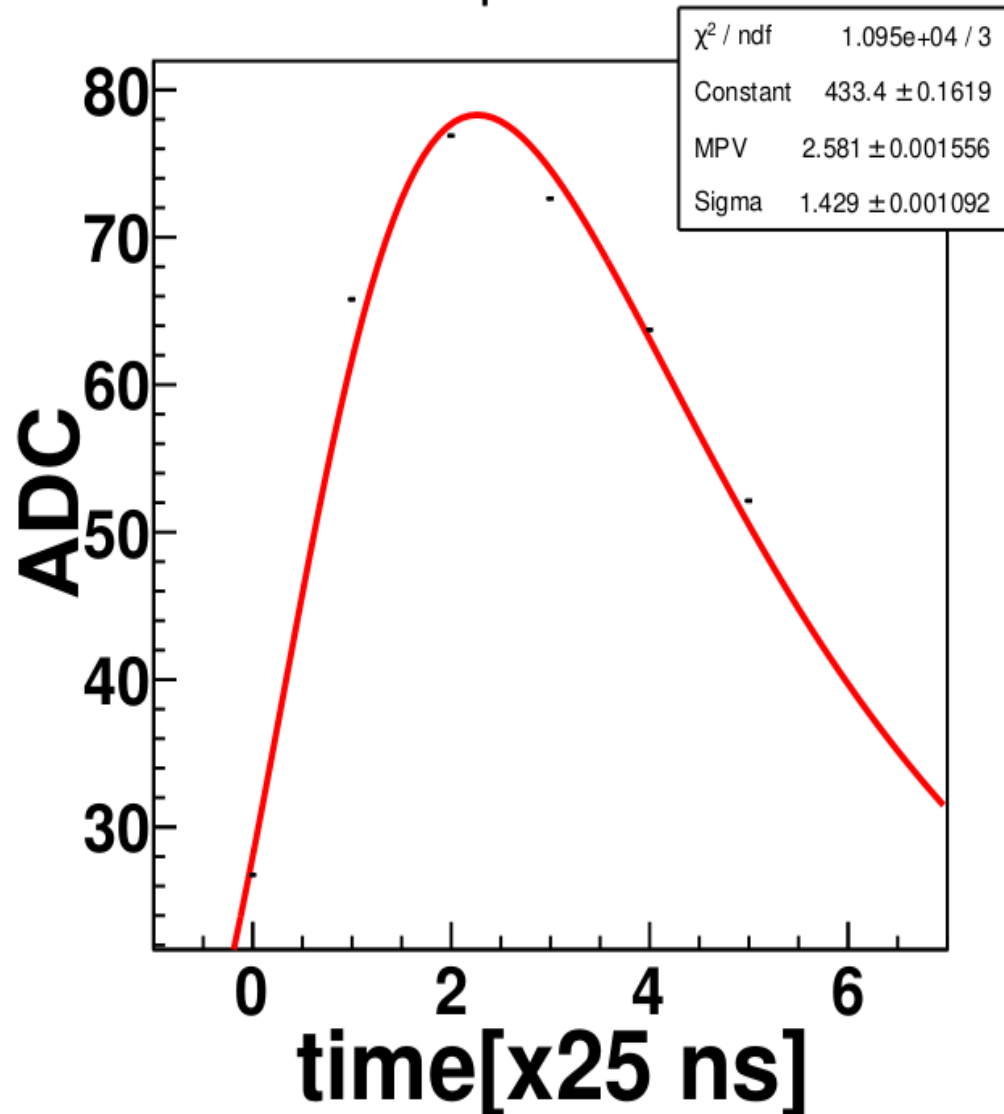
(Third split)

Daq update

- Replaced crate0 MPD14 on Monday which was giving occasional readout errors

- Collected ~1.1 M cosmic event with new MPD: Readout error appeared with crate1MPD12 for the event 969147 (Not seen readout error with crate0 MPD14)

-Tracking analysis of this run is in progress

- Start/End of run info are now automatically posted to log-entry

Cluster finding in root gui

- Find cluster on X and Y by checking if there are adjacent fired strips. If there are at least two fired strips close to each other, this will be considered as cluster

- For each cluster found in step one, add all the strip ADCs,. this will be considered as the cluster ADC ->> accumulated charge

- Sort the X and Y cluster charge value calculated from step 2.

- Match the X and Y. It will consider Highest ADC on X corresponding the highest on Y , and so on